

# Attitudes to Anesthesiology Residency among Medical Students in the American and the Israel Programs at Sackler Faculty of Medicine, Tel Aviv University

Sharon Orbach-Zinger MD<sup>1</sup>, Racheli Rosenblum MD<sup>2</sup>, Shuli Svetzky MD<sup>3</sup>, Asenath Staiman MD<sup>4</sup> and Leonid A. Eidelman MD<sup>1</sup>

<sup>1</sup>Department of Anesthesiology, Rabin Medical Center (Beilinson Campus), Petah Tikva, Israel

<sup>2</sup>Department of Pediatrics, Sharei Zedek Medical Center, Jerusalem, Israel

<sup>3</sup>Department of Internal Medicine, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel

<sup>4</sup>Department of Internal Medicine, Beth Israel Medical Center, New York, NY, USA

**ABSTRACT:** **Background:** There is a growing shortage of anesthesiologists practicing in Israel. This shortage is in contrast with the United States where anesthesiology has become a very desired specialty.

**Objectives:** To discover what factors attract Israeli students to choose a residency and how students view the option of choosing anesthesiology.

**Methods:** We sent questionnaires to students in the Israeli and American programs at Tel Aviv University's Sackler Faculty of Medicine asking about factors that influenced their choice of residency and the advantages and disadvantages of a residency in anesthesiology. Although the students were studying at the same medical school and hospitals, students in the Israeli program were planning to enroll in Israeli residency programs while students in the American program planned to apply for residency in the United States.

**Results:** A significantly larger proportion of American students (12.9%) were interested in an anesthesiology residency when compared with the Israeli students (0%) ( $P = 0.034$ ). American students considered salary and working conditions to be advantages of the anesthesiology residency while Israeli students considered Israeli working conditions and salaries to be a disadvantage.

**Conclusions:** Whereas there is considerable interest among American students at Sackler Medical School in an anesthesiology residency, there is little interest among Israeli students.

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**KEY WORDS:** anesthesiology, residency, medical students

8.4% of current anesthesiology residents had graduated from Israeli medical schools [1]. Less than 1% of graduating Israeli medical students choose a residency in anesthesiology [1]. Whereas anesthesiology remains an unpopular residency choice in Israel, there was a 500% increase in U.S. medical students choosing this specialty during the period 1996–2002 [2]. In 2002, 6.4% of American medical students chose an anesthesiology residency [2].

In order to determine why anesthesiology was such an unpopular choice in Israel in contrast to its popularity in America, we surveyed medical students in the Israeli and American programs at a medical school in Israel. The four-year American program is affiliated with New York State; medical students study in Israel and continue their internship and residency in the United States. The Israeli program consists of 6 years followed routinely by an Israeli internship and residency. This dual program within one medical school is a unique opportunity to compare students exposed to the same hospital environment but planning residencies in different countries.

## SUBJECTS AND METHODS

We sent a questionnaire via email to sixth year Israeli and fourth year American students at Tel Aviv University's Sackler Faculty of Medicine during the fall and winter of 2008. The Israeli students study in a six year program while the Americans are in a four year post-college program. All Israeli students had completed a two-week rotation in anesthesiology and a week of pre-rotation lectures. American students did not have a formal rotation but had received two lectures on anesthesiology within the surgical rotation.

The questionnaire consisted of five multiple-choice questions. The first question related to the most important consideration when choosing a residency. The options were: salary, working conditions/hours, respect from colleagues, interesting profession, opportunities for advancement, and patient contact. The second question asked the student to choose three pos-

The shortage of anesthesiologists in Israeli has become a nationwide crisis. Anesthesiologists are involved in many aspects of patient care including surgery, critical care, trauma, acute and chronic pain management, and obstetric management. However, according to a study in 2006, only

sibilities from the list of residencies that he/she was considering. The choices were: family medicine, internal medicine, pediatrics, general surgery, emergency medicine, surgical subspecialty (plastic, ear/nose/throat, cardiac, neurosurgery), anesthesiology, and gynecology. For the third question, the student was asked to choose two advantages of an anesthesiology residency from the following list: salary, working conditions/hours, respect from colleagues, interesting profession, and opportunities for advancement. Finally, the student was asked to choose two disadvantages of the anesthesiology residency from the same list. A comparison was made between the two groups.

**STATISTICAL ANALYSIS**

Fischer’s exact test was used to compare categorical values between the groups and the Student *t*-test for continuous variables. A *P* value of < 0.05 was considered statistically significant.

**RESULTS**

Seventy students completed the questionnaire: 39 from the Israeli program and 31 from the American program. This correlated with a 44.5% response rate. The students’ mean age was 27.3 ± 2.9 years and 64.3% of them were female. There was no difference between the two groups in demographic data. The mean age of the Israeli students was 27.8 ± 2.8 years and of the American students 26.8 ± 2.9 (*P* = 0.27); 67.8% of the Israeli and 61.2% of the American students were female (*P* = 0.60).

Factors influencing the choice of residency are listed in Table 1. The most common reason for choosing a residency was ‘interesting profession’. The second most common reason among Israeli medical students was ‘working conditions/hours’ while among American students it was ‘patient contact’. No statistical differences were found between the groups.

Possible residency choices are listed in Table 2. There were no statistical differences between the groups in choice of residency except for anesthesiology, which was considered by a significantly larger percentage (12.9%) of American students compared to 0% of Israeli students (*P* = 0.034).

**Table 1.** Factors influencing residency choices

Factors influencing choice	American medical students	Israeli medical students	<i>P</i> value
Salary	1 (2.6)	0 (0)	1
Working conditions/hours	3 (9.7)	6 (15.4)	0.721
Respect from colleagues	1 (3.2)	0 (0)	0.443
Interesting profession	21 (67.7%)	31 (79.5)	0.285
Opportunities for advancement	2 (6.5%)	0 (0%)	0.193
Patient contact	4 (12.9%)	1 (2.6%)	0.163

Values presented as number (percentage)

**Table 2.** Possible residency choices

Choice	American medical students	Israeli medical students	<i>P</i> value
Family medicine	4 (12.9)	1 (2.6)	0.791
Internal medicine	22 (71)	21 (53.8)	0.216
Pediatrics	13 (41.9)	17 (43.6)	1.00
General surgery	11 (35.5)	12 (30.8)	0.799
Emergency medicine	14 (45.2)	9 (23.1)	0.073
Surgical subspecialty	10 (32.3)	20 (51.3)	0.146
Anesthesiology	4 (12.9)	0 (0)	0.034*
Gynecology	11 (35.5)	19 (48.7)	0.334

Values presented as number (percentage)

\*Statistically significant difference

**Table 3.** Advantages of choosing an anesthesiology residency

Choice	American medical students	Israeli medical students	<i>P</i> value
Salary	25 (80.6)	6 (15.4)	< 0.001*
Working conditions/hours	24 (77.4)	18 (46.2)	0.013*
Respect from colleagues	0 (0)	2 (5.1)	0.499
Interesting profession	5 (16.1)	16 (41)	0.035*
Opportunities for advancement	1 (3.2)	15 (38.5)	< 0.001*

Values presented as number (percentage)

\* Statistically significant difference

The advantages of an anesthesiology residency are shown in Table 3. A significantly larger percentage of Americans listed ‘salary’ (80.6% vs. 15.4%) and ‘working conditions’ (77.4% vs. 46.2%) to be advantages. Israeli students were significantly inclined to cite ‘interesting profession’ (41% vs. 16.1%) or ‘opportunities for advancement’ (38.5% vs. 3.2%) as advantages.

Disadvantages of an anesthesiology residency are shown in Table 4. No American students considered ‘salary’ to be a disadvantage while 51.3% of Israeli students did (*P* < 0.001). More Israeli than American students considered ‘working con-

**Table 4.** Disadvantages of choosing an anesthesia residency

Choice	American medical students	Israeli medical students	<i>P</i> value
Salary	0 (0)	20 (51.3)	< 0.001*
Working conditions/hours	3 (9.7%)	15 (38.7)	0.007*
Respect from colleagues	15 (48.4)	10 (25.6)	0.078
Interesting profession	24 (77.4)	17 (43.6)	0.007*
Opportunities for advancement	12 (38.7)	8 (20.5)	0.115

Values presented as number (percentage)

\* Statistically significant difference

ditions' to be a disadvantage (38.5% vs. 9.7%,  $P = 0.007$ ). More American students than Israeli students did not view anesthesiology as an 'interesting profession' (77.4% vs. 43.6%).

## DISCUSSION

In this study we compared the attitudes of students enrolled in two different programs in the same medical school. Interestingly, no Israeli medical students were considering a residency in anesthesiology whereas 12.9% of American students were. Salary and working conditions of anesthesiologists in the U.S. were considered primary advantages by American students while Israeli students looking at Israeli conditions found these same items to be a disadvantage.

This study corroborates a study by Dorsey et al. [2], which found a 500% increase in the percentage of American medical students choosing an anesthesiology specialty. A main reason for choosing this specialty was that it was associated with a "controllable lifestyle" (the ability to control work hours) and above-average income [2]. In the past few years, lifestyle and income have become increasingly important to medical students when choosing their career path [3]. A recent study conducted in nearby Jordan found anticipated income to be a factor in choosing a residency in 58% of students surveyed [4].

Similar to anesthesiology, there has been a significant decline in the number of medical students choosing general surgery as a specialty in Israel. A recent study of Israeli medical students found that professional interest and satisfaction and amiable working atmosphere were among the strongest factors in choosing a residency program. One of the strongest deterrents to choosing a general surgery residency was the compromised lifestyle [5].

Israeli students in general found anesthesiology to be an 'interesting profession' while American students did not. We believe this may be due to different exposures to anesthesiology within the medical school. Israeli students had a week of frontal lectures followed by a two-week rotation in anesthesiology. American students had only two lectures in anesthesiology during their surgical rotation. Although Israeli students found it to be an interesting profession

and interest was stated as the primary factor in choosing a residency program, this fact did not influence their career choice. This finding coincides with a study by Samra and colleagues [6], which showed that a clerkship in anesthesiology was a worthwhile clinical experience and improved their attitudes towards anesthesiologists as physicians but did not necessarily impact their choice of specialty. Another possible explanation for the discrepancy in attitudes is the presence of nurse-anesthetists in the United States. The presence of these nurses was found to have a negative impact on students' perception of anesthesiology as a profession [7].

The present paper also corroborates a study by Weissman and co-authors [1], who found a dearth of Israeli trained anesthesiologists in the Israeli workforce. In order to improve the situation in Israel, Weissman et al. [1] predicted the need to recruit at least 5% of Israeli medical students to alleviate the current shortage of anesthesiologists. Regarding the students in the American program, this quota was easily met. However, among those students planning to begin a residency in Israel, this target remains unreachable.

### Corresponding author:

**Dr. O. Orbach-Zinger**

Dept. of Anesthesiology, Rabin Medical Center (Beilinson Campus),  
Petah Tikva, Israel

**email:** sharonorbach@yahoo.com

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